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Modernization of statistical production and services and managing for efficiency

Modernization of the statistical system in Poland

Note by the Central Statistical Office of Poland

Summary

The paper describes the efforts and plans of the Central Statistical Office of Poland in modernizing the statistical production process to increase its efficiency. To achieve this goal a number of activities accompanying organizational and coordination processes are or will be carried out as described in the paper.

The paper is presented for discussion to the first session of the Conference of European Statisticians' seminar "Modernization of statistical production and services and managing for efficiency".

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I. Introduction

1. The current model of organization of surveys in the Central Statistical Office of Poland (CSO) continues the tradition and experience of the previous system of public statistics. This system was designed as a model known as "stovepipe", so that different statistical surveys are carried out for each domain and various organizational units are in charge of them. Approximately 20 departments and specific statistical offices take part in the survey process from the beginning to the end: from designing the survey to making the results available. The leader unit specialising in a given thematic field plans, carries out surveys and draws up results in accordance with prepared procedures, separate for each survey.

2. Eight main stages can be identified in the statistical production process: specification of needs, designing, building, data collection, data processing, data analysis, data dissemination and ex-post evaluation. The above-mentioned main stages of the survey process are basically in accordance with stages determined in the Generic Statistical Business Process Model (GSBPM) which presents the standard approach[1] *inter alia* to the description of the statistical production process. However, in reality the Polish statistical production process occurs separately for every survey and is executed in various ways, for example often with significant overlay of the boundaries between particular stages of the process.

3. With such an organization of statistical production, problems occur as a result of the silo effect. The separate organizational units are easily limited to their own tasks and attempt to implement them in their own way, but often trying to use common methods of work. As a result, the following problems may occur:

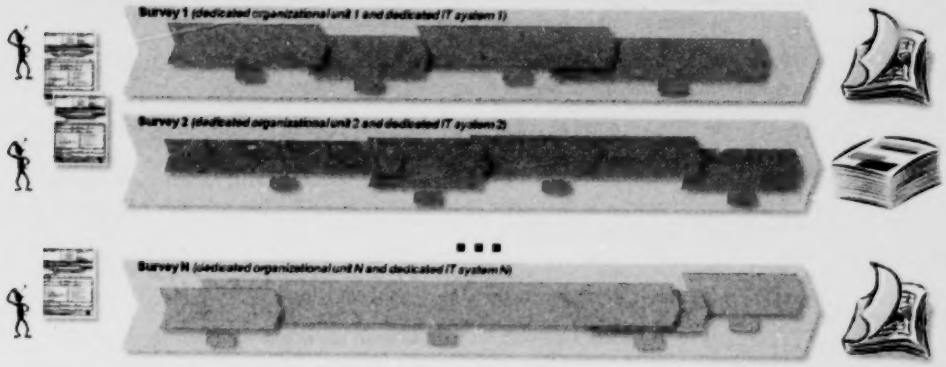
- High diversity (including lack of compatibility and standardisation) of work processes;
- Redundancy and often lack of specialisation in executed activities, in particular redundancy concerning the scope of information obtained from respondents;
- Duplication of competences being a result of, for example, lack of specialisation of activities;
- Development and maintenance of separate IT systems for each survey;
- Predominance of surveys for which data are collected via forms and questionnaires directly from the respondent with insignificant use of existing information available for instance in the public administration databases.

4. The above-described problems are visually shown in the figure 1.

5. Based on the above deliberations, it can be said that this type of organization of statistical production leads to having two hundred, mostly independent production lines, one dedicated for each statistical survey.

[1] www.unece.org/stats/gsbpm

Figure 1
Diagram representation of the current model of statistical production


Survey 1 (dedicated organizational unit 1 and dedicated IT system 1)
Survey 2 (dedicated organizational unit 2 and dedicated IT system 2)
Survey N (dedicated organizational unit N and dedicated IT system N)

II. Organizational change

6. The assessment of the organization of the CSO statistical production processes induced making a decision to introduce an integrated model of organizing the surveys by using the GSBPM rules. This is a desired direction of organizational changes of official statistics, not only in Poland. Problems arising within the current organization of statistical production in Poland are, to a significant extent, similar to those which appear in other organizations mentioned in the sector specific publications[2] as "*Autonomous Stovepipes*".

7. The introduction of a new model of organizing statistical work aims to optimise, re-design and standardise work processes. The change requires adequate preparation, and in the first place carrying out an analysis of previous work processes to identify similar activities with analogical results which require similar competences. Based on this analysis the GSBMP rules can be applied in a project to create more uniform and coherent standardised processes to replace the present production lines.

8. Changing the model of organization may influence many aspects of statistical production and, thus, requires many preparatory activities such as:

- Defining production processes in specific research realities;
- Integrating surveys in different domains of statistics – it is difficult to integrate all 250 topics of surveys carried out at present in the system of Polish statistics;
- Building a system of metadata as the basis for integration and standardisation;
- Preparing a concept and implementing a new integrated, information technology infrastructure for drawing up surveys;

[2] Bo Sungren, "Towards a system of official statistics based on a coherent combination of data sources, including surveys and administrative data", 2011

- Adapting to a change of the organizational structure that fits the integrated model of organization and supports process-oriented approach to statistical production (all as part of current practice) requires a lot of time.

9. When preparing for these organizational changes, a number of activities were already undertaken, for example:

(a) "A Concept of statistical surveys organization until 2020" was drawn up to be a model which provides direction to the activities of implementing the new organization of the statistical production process based on GSBPM and planning the schedule of implementation. The Polish model is called the Integrated Statistical Business Process Model (ISBPM);

(b) A Team to re-organise the system of statistical surveys and a few sub-teams to prepare specific processes were appointed;

(c) An ISBPS project was developed for implementation in the Polish statistics;

(d) Works on the System of Statistical Metadata as part of the Public Statistics Information System (PSIS) and adaptation of the information technology system to the new organization of the surveys are being carried out.

(e) The following priority tasks were selected for practical implementation:

- Examining user needs;
- Standardising and integrating data;
- Analysing the survey results;
- Improving communication with users and respondents.

10. To learn from the experience of other national statistical systems, CSO takes part in activities of the High Level Group for the Modernization of Statistical Production and Services and in committees appointed as part of HLG. CSO also analyses practical solutions used in various institutions and countries.

11. As part of the priority tasks realised, the following activities are carried out in the CSO:

(a) A methodology for diagnosing user needs, describing rules and ways of analysing user needs, and a communication strategy were developed. Specification of user needs is the first stage of the statistical production process. Adequate use of the analysis guarantees better adaptation of statistical products and services to user expectations. It will also make it possible to better adapt the scope of official statistics to the information needs related to existing and new social and economic phenomena. An assessment of the existing information resources will also make it possible to define gaps, identify any excess of information produced and avoid duplication of effort.

(b) A number of tasks were implemented to improve communication with stakeholders. Communication is an essential element of proper and effective functioning of official statistics. Due to the well-planned, organized and realised communication, CSO can effectively:

(i) Inform and encourage stakeholders and explain statistical products and services to them;

(ii) Promote products and services;

(iii) Maintain cooperation and good relations;

(iv) Educate users and disseminate knowledge of statistics;

(v) Eliminate any possible conflict situations (by predicting the effect of activities).

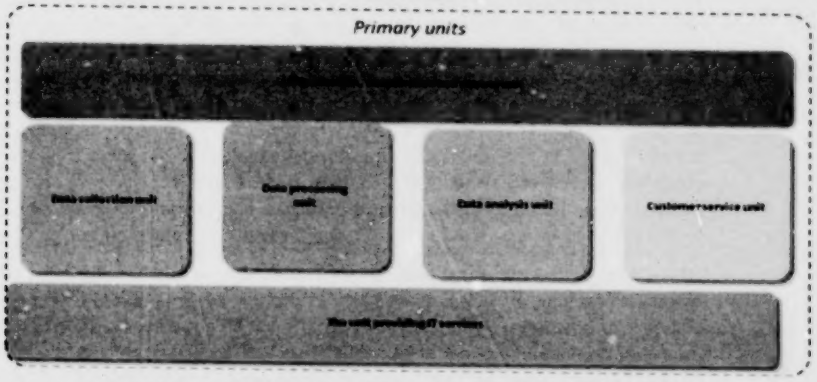
(c) A System of Statistical Metadata that brings together all metadata of variables will be created as a tool for inventorying and integrating the variables. An intention to modernize statistical production is observed in many countries, particularly concerning data collection. In the European Union, Eurostat stresses the need to increase effectiveness of data collection and reducing the burden on respondents. Existence of unjustified differences in the metadata which makes it difficult to integrate data collection both on national and European levels is universally noticed. Data and metadata should, thus, be comprehensively reviewed to standardise similar variables. Some of these should be possible to be integrated into one variable to be used for various surveys without great standardisation effort (e.g. by standardising formats, definitions, acquisition time limits, etc.).

III. Organizational structure and key tasks

12. Organizational structure is a relevant element of the ISBPM described in the previous chapters. It is also relevant to enable and support positive effects that it brings. According to the process description, CSO may identify basic units, such as:

- Control, coordination and organization Unit;
- Data collection Unit;
- Data processing Unit;
- Data analysis Unit;
- Customer service Unit;
- Information technology (IT) services Unit and other supporting units (dealing with staff management, administrative and finance management).

Figure 2.
Basic units of the Integrated Statistical Business Process Model



13. The basic assumption determining the multi-layer structure proposed herein is the concentration of similar tasks into task groups that require similar knowledge, experience and competence and form together a particular organizational unit.

14. One of the main tasks when planning the implementation of ISBPM will be to fully ensure the efficiency of carrying out statistical surveys. It is important to safeguard the integrity of each statistical process and ensure the appropriate competence for efficient coordination with all remaining basic organizational units. Therefore, the ownership of the process groups has been assigned to the *Control, coordination and organization Unit*. This unit is responsible both for the result of the production process as well as for defining and monitoring the measures of its efficiency, management of the process, defining the course of action etc.

15. A relevant support for the *Control, coordination and organization Unit* is provided by the CSO management which guards the process approach as outlined in the ISBPM. The management will provide the *Unit* with support in case of significant problems and issues requiring action on the level of the entire organization.

16. The fundamental task of the *Data collection Unit* is to carry out different data collections, on the basis of the necessary preparation by the *Data processing Unit*, using the most adequate methods of obtaining data. The products of this unit are the data collections gathered for the statistical products group and transferred to the *Data processing Unit*. This unit is the owner of the process of data collection.

17. The fundamental product of the work of the *Data processing Unit* is the micro and macro data repository appropriately prepared and fulfilled with data. One of the tasks is to analyse the needs of the *Data analysis Unit*. This need refers to the aggregates, the resulting micro data of statistical products and the processing of the obtained data into a data set to be used for compiling statistics and conducting analyses (i.e. value collections of variables collected for the statistical products groups). This unit is the owner of the process of data processing.

18. The main task of the *Data analysis Unit* is delivering to the *Customer service Unit* products based on the needs for statistical products. This task is implemented on the basis of a detailed data analysis, applying the statistical confidentiality principle and finally confirming that the data are made available. The fundamental result of the work of the *Unit* should be publication aggregates and the product groups statistically recorded in the analytical micro and macro data repository (data Warehouse). This unit is the owner of the data analysis process.

19. One of the tasks of the *Customer service Unit* is the preparation of statistical project products, on the basis of identified information needs (i.e. requirement specification regarding the products fulfilling the identified information needs of users). These statistical project products create the needs for statistical products. The second key task is making statistical information available in the form of final products prepared in the statistical production processes, including their transformation to the selected form for delivery, such as printed publication, electronic format etc. A relevant element of the *Unit*'s activity will also be the promotion of offered official statistical products. The *Customer service Unit* is the owner of the needs specification process and the data dissemination process.

20. The *Information technology (IT) services Unit* was classified as an organizational unit. That was mainly due to the role of IT solutions to support the activities of other units. Ultimately, that activity has an influence on the efficiency of the entire production process of official statistics. The *IT service Unit*, on the basis of requirements regarding the tools or IT services specified by all other units, prepares and provides IT tools and services. This *Unit* exercises, adjusts, tests and implements a set of tools and IT services, ensures continuity of work of the entire IT environment supporting the work of the other units. This *Unit* is the owner of the IT tool and services design process.

21. The proposed and above described structure exerts pressure to the organization of statistical surveys and the current functional specialization of the organization.

22. In order to proceed towards the new organizational status proposed herein for CSO, a gradual approach will be applied, i.e. step-by-step and stretched in time. Such an approach seems justified not only by the scope of changes but also by the fact that the proposed changes will require proper preparation and motivation of people engaged in this process. People constitute the fundamental capital of the organization, which, if appropriately organized and directed, determines the success of each organization functioning. People – with their knowledge and willingness to conduct creative operations – shape the organizational culture and formulate strategies and actions to implement them. The effective use of the existing competences and the development of new ones constitute a key success factor for the process of proposed organizational changes.

IV. Conclusion

23. There is no doubt that the generic model of organization of surveys is more effective from the point of view of:

- Managing the personnel resources, including adapting the competences to the needs of new organization of the surveys;
- Using efficiently the financial resources available for statistics;
- Improving the data quality as well as the functioning of the whole statistical institution;
- Organizing the process of statistical surveys and better using the potential of official statistics.

24. These are important reasons why decisions were made to change the organization of statistical surveys in Poland, while being aware that it is a many-sided undertaking which requires acceptance of statisticians as well as wide preparation by both the whole institution and its staff.

25. The implementation of the new model of organization of surveys constitutes a strategic decision bringing benefits for many years. Still, as in the case of every organizational transformation it creates certain costs. Therefore, the decision to implement ISBPM should naturally be preceded by a detailed analysis of the benefits and costs. However, with the benefits stemming from the use of the common solutions, a great potential seems to be underlying the proposed model. This model seems to eliminate numerous inefficiencies, including the following:

- A limited number of connected and integrated IT systems instead of hundreds existing;
- Several specialized organizational units, set up according to task specialization, concentrating specialist competences instead of many "independent" organizations;
- Standardized statistical survey processes, using common methods and best practices for various processes instead of using an independent and individual approach for each survey;
- Comprehensive review of all conducted surveys: eliminating sources of structural ineffectiveness by grouping products;

- Instead of expensive data, collected from direct surveys, obtain cheaper data by using alternative sources like administrative sources or Big Data, and by sharing data within the organization from surveys in different fields.